IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE BOARD OF PATENT APPEALS AND INTERFERENCES

In re Patent Application of:

Inventors:	Michael A. Czayka et al.
Serial No.:	10/726,273
Filed:	December 2, 2003
For:	RADIATION THICKENED SHEET MOLDING COMPOUND
Art Unit:	1796
Examiner:	Tae H. Yoon

REPLY BRIEF

To: Mail Stop Appeal Brief – Patents
Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

This is an appeal under 37 C.F.R. §1.191 to the Board of Patent Appeals and Interferences of the United States Patent and Trademark Office from the final rejection of claims 2-4, 10-14, and 19-30 in the above-identified patent application.

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The final page of **Section VII** of this reply brief bears the practitioner's signature.

III. STATUS OF CLAIMS

The status of the claims in this application is:

1. TOTAL NUMBER OF CLAIMS IN APPLICATION

There are 20 pending claims in this application, numbered 2-4, 10-14, and 19-30.

In the Office Action of December 6, 2007, the Examiner issued a final rejection of the pending claims. Claims 19-26 stand rejected as being unpatentable over U.S. Patent 4,327,145 to Mitani et al. ("Mitani") under 35 U.S.C. §102(b) and 35 U.S.C. §103(a). Claims 19-26 stand rejected as being unpatentable over U.S. Patent 3,429,950 to Parker, Jr. ("Parker I") under 35 U.S.C. §102(b) and 35 U.S.C. §103(a). Claims 19-26 also stand rejected under 35 U.S.C. §103(a) as unpatentable over Parker I in view of U.S. Patent 3,300,544 to Parker, Jr. ("Parker II"), Japanese Patent JP54120675A, or Japanese Patent JP401251791A. Claims 2-4, 10-14, and 19-30 stand rejected under 35 U.S.C. §103(a) as unpatentable over Mitani or Parker I in view of U.S. Patent 6,063,864 to Mathur et al. ("Mathur"), U.S. Patent 5,985,785 to Lane et al. ("Lane"), or Japanese Patent JP54120675A.

2. STATUS OF ALL OF THE CLAIMS

A. Claims canceled: 1, 5-9, 15-18.

B. Claims withdrawn from consideration but not canceled: none.

C. Claims pending: Claims 2-4, 10-14, 19-30

D. Claims allowed: none.

E. Claims rejected: 2-4, 10-14, 19-30.

3. CLAIMS ON APPEAL

The claims on appeal are claims 2-4, 10-14, and 19-30.

VI. GROUNDS OF REJECTION TO BE REVIEWED ON APPEAL

1. Whether claims 19-26 are unpatentable under 35 U.S.C. §102(b) and 35 U.S.C. §103(a) over U.S. Patent 4,327,145 to Mitani et al. ("Mitani").
2. Whether claims 19-26 are unpatentable under 35 U.S.C. §102(b) and 35 U.S.C. §103(a) over U.S. Patent 3,429,950 to Parker, Jr. ("Parker I").
3. Whether claims 19-26 are unpatentable under 35 U.S.C. §103(a) over Parker I in view of U.S. Patent 3,300,544 to Parker, Jr. ("Parker II"), Japanese Patent JP54120675A, or Japanese Patent JP401251791A.
4. Whether claims 2-4, 10-14, and 19-30 are unpatentable under 35 U.S.C. §103(a) over Mitani or Parker I in view of U.S. Patent 6,063,864 to Mathur et al. ("Mathur"), U.S. Patent 5,985,785 to Lane et al. ("Lane"), or Japanese Patent JP54120675A.

VII. ARGUMENTS

REPLY TO EXAMINER'S RESPONSE

Rejections under 35 U.S.C. 102(b)

What is fundamentally at issue in this appeal is the proper construing of the transitional phrase "consisting essentially of." As stated previously, the use of "consisting essentially of" language in a claim only allows the presence of additional components that do not materially affect the properties of the resulting composition. The isocyanates of Mitani, or quinone modifiers of Parker I (US 3,429,950), are examples of additional components that would materially affect the properties of the claimed product. Undoubtedly, there are numerous additives that could be used that would not affect the properties of the final product. However, the isocyanates of Mitani and quinone modifiers of Parker I are not among them.

The Examiner ignores that *In re De Lajarte* (337 F.2d 870, 143 USPQ 256 (C.C.P.A. 1964) states that one cannot assume that small differences are incapable of causing a difference in properties. The Applicants have shown that one of ordinary skill in the art would recognize that additional components such as isocyanate and thickening agents would materially affect the final product. As stated previously, *De Lajarte* does not shift the Examiner's burden of establishing a prima facie case of anticipation to Applicants in the instance of "consisting essentially of" claims.

Finally regarding Mitani, the Examiner states, "...any limitation such as without thickening agent of the specification is not claimed (sic) limitation." On the contrary, the use of "consisting essentially of" in claim 19 excludes the use of thickening agent regardless of whether the claim element has *in haec verba* support in the specification.

The Applicants have provided clear advantages of molding compounds without thickening agents such as metal oxides. Metal oxides can cause high variability of product, the introduction of undesired moisture and resulting creation of unwanted chemical reactions during molding, and the possibility of a non-isotropic molded material due to flow of the molding compound, as provided on pages 1 and 2 of the specification.

One of ordinary skill in the art would recognize that the addition of isocyanates or quinone modifiers into a composition as otherwise claimed would provide distinct physical properties compared to a similar composition that was devoid of isocyanates and quinone modifiers. Furthermore, the omission of such additional components provides for a simplified preparation of sheet molding compounds. Therefore, Mitani and Parker I can not be said to teach or suggest a molding compound consisting essentially of at least one unsaturated oligomer resin, at least one unsaturated monomer, and optionally at least one free radical initiator. The omission of compounds present in Mitani and Parker I, as in claim 19, provides a composition with basic characteristics that are novel and non-obvious over Mitani and Parker I.

Claims Rejections under 35 U.S.C. §103(a)

As with the rejections under 35 U.S.C. §102(b), the rejections under 35 U.S.C. §103(a) center around the proper construction of the phrase "consisting essentially of." Neither Mitani nor Parker I teach or suggest the claimed invention. Mitani provides no teaching or suggestion that the omission of isocyanate is desirable or even possible. Similarly, Parker I indicates that it is the presence of compounds such as dialkyl p-benzoquinones in a precise quantity that makes it possible to create a B-staged polyester/monomer product. "Stable B-stage polyester resins are produced by co-polymerizing ethylically unsaturated monomers with unsaturated polyesters in

the presence of a *critical* amount of dialkyl p-benzoquinone... (Abstract, emphasis added). Parker I provides no suggestion that the omission of such "quinone modifiers" is possible. In contrast, the claimed invention provides a stable B-staged molding composition without the use of "modifiers" such as dialkyl p-benzoquinones. Therefore, Mitani and Parker I actually teach away from the claimed invention.

The Examiner has not substantively addressed the Applicant's arguments regarding Parker II (US 3,300,544) other than to merely maintain the previous rejection. As stated previously, while Parker I provides the use of dialkyl p-benzoquinones to produce a B-staged polyester, Parker II provides a different quinone, 1,4-naphthoquinone, as a "polymerization modifier" for that purpose.

While the Examiner has now provided translations of the complete documents of JP 54120675 and JP 401251791, no additional arguments regarding the alleged obviousness of the claimed invention in light of these documents, alone or in combination with other references, are presented. The Applicants also maintain that should the Board find that the translation of either of the complete Japanese references is materially different from the previously provided abstracts or provides additional grounds for rejection, the Applicants should be entitled to address the contents of these references in response to a new Office Action.

However, consistent with the previously provided abstract, the translation of JP 54120675 provides an epoxy resin-impregnated prepeg laminated to an unsaturated polyester layer. The polyester comprises 100 parts by weight of an unsaturated polyester resin, 5-50 parts of a crosslinking agent, 0-2 parts of a light polymerization initiator, 1-100 parts of a thermal polymerization initiator, 0.01-1 part of a thermal polymerization inhibitor, 0-500 parts of filler(s) and 0-500 parts of reinforcing materials. JP 54120675 does not teach or suggest a polyester

consisting essentially of at least one unsaturated oligomer resin, at least one unsaturated monomer and optionally, at least one free radical initiator. The presence of 5-50 parts of a "crosslinking agent" makes the disclosure of JP 54120675 similar to those of Parker I and Parker II.

JP 401251791 provides a wiring board that is made by using three different resins: an epoxy, a melamine and a saturated polyester. The composition comprises 10-50 parts by weight epoxy resin having a molecular weight of 5,000 or more, 5-25 parts by weight alkylmelamine resin, 5-50 parts by weight saturated polyester. It should be noted that JP 401251791 calls for the presence of a *saturated* polyester, not an *unsaturated* polyester, as recited in the claims. Additionally, the presence of an epoxy resin and an alkylmelamine resin with the saturated polyester, which are dissolved in a mixed solvent and cured, also distinguish JP 401251791 from the present invention. (See translation, page 8, lines 1-6, page 9, lines 6-9 and Table 1, page 12.) One of skill in the art would not have found a teaching or suggestion of B-staged polyesters consisting essentially of at least one unsaturated oligomer resin, at least one unsaturated monomer and optionally, at least one free radical initiator from the teaching of a B-staged epoxy/melamine/polyester combination.

As stated previously, all of Mathur's examples additionally contain "100 ppm of hydroquinone as a stabilizer" (column 4, lines 45-46). Therefore, Mathur's disclosure is similar to Parker I's disclosure in terms of the content of the composition, i.e., they require the presence of a quinone compound. Additionally, Mathur also does not provide a stable, partially cross-linked compound as recited in the claims, but instead provides heat, UV irradiation and electron beam polymerization methods in connection with complete polymerization and crosslinking.

The Examiner indicates that Lane teaches the adjustment of irradiation dosage. However, Lane provides a metal-polymer complex in which the complex is destroyed and a metal salt in the metal-polymer complex is reduced to elemental metal during or after final cross-linking. (Abstract.) Lane does not teach or suggest the irradiation of a composition consisting essentially of at least one unsaturated oligomer resin and at least one unsaturated monomer.

Conclusion

The Applicants respectfully assert that all of pending claims 2-4, 10-14, 19-30 are allowable for at least the following reasons. One of ordinary skill in the art would not have found any teaching or suggestion in the cited references, alone or in combination, to provide a molding compound consisting essentially of at least one unsaturated oligomer resin, at least one unsaturated monomer and optionally, at least one free radical initiator, wherein this compound is non-reversibly crosslinked by irradiation within a predetermined amount to provide a stable, partially crosslinked compound, and wherein the partially crosslinked compound is capable of being further crosslinked. Likewise, one of ordinary skill in the art would have found no teaching or suggestion to use such a composition in a method of making a B-staged polyester. One of ordinary skill in the art would have had no reasonable expectation of success in combining the teachings of the references as suggested by the Examiner. Such a suggestion to combine the references or expectation of success in making the combination can only be the result of impermissible hindsight.

In accordance with the foregoing, the Applicants respectfully request reversal of the Examiner and allowance of all pending claims. This Reply Brief is timely filed on or before August 25, 2008, as August 23, 2008 falls on a Saturday.

Respectfully submitted,

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